

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A channel estimator for a packet data communications receiver, the packet data having fixed portions or fields and one or more variable portions or fields, the channel estimator comprising:
an input to receive data for symbols of a data packet transmitted over a channel to said receiver;
a memory to store said received symbol data;
a training sequence determiner to determine a training sequence using one or more variable data portions or fields of said data packet; and
an adaptive filter coupled to said memory and to said training sequence determiner and configured to use said received symbol data and said training sequence to determine an estimate of a response of said channel.

Claim 2 (Currently Amended): The [[A]] channel estimator as claimed in claim 1 wherein said training sequence determiner is configured to determine said training sequence by determining one or more substantially constant elements of said one or more variable data portions or fields of said data packet.

Claim 3 (Currently Amended): The [[A]] channel estimator as claimed in claim 1 wherein said training sequence determiner is configured to determine said training sequence by determining probabilities for values of bits or symbols of said one or more variable data portions or fields of said data packet.

Claim 4 (Currently Amended): The [[A]] channel estimator as claimed in claim 3
wherein said training sequence is determined by determining random values for said bits or
symbols weighted by said probabilities.

Claim 5 (Currently Amended): The [[A]] channel estimator as claimed in claim 3
wherein said training sequence is determined by selecting values for said bits or symbols
dependent upon the probabilities of the selected values in comparison to a threshold.

Claim 6 (Currently Amended): The [[A]] channel estimator as claimed in claim 1
wherein said training sequence determiner is configured to determine said training sequence
by decoding data for at least a portion of a header of a said packet.

Claim 7 (Currently Amended): The [[A]] channel estimator as claimed in claim 1
wherein said training sequence determiner is configured to determine said training sequence
by decoding data for at least a portion of a user data payload of a said packet.

Claim 8 (Currently Amended): The [[A]] channel estimator as claimed in claim 6
wherein said training sequence determiner is further configured to check said decoded data
for errors, and wherein said channel response estimate is determined conditionally upon no
errors being detected in said decoded data.

Claim 9 (Currently Amended): The [[A]] channel estimator as claimed in claim 1
wherein said adaptive filter is configured to use said training sequence more than once to
determine said estimated channel response.

Claim 10 (Currently Amended): The [[A]] channel estimator as claimed in claim 9
wherein said adaptive filter is configured to employ an algorithm having a stepwise
convergence to a solution and wherein a step size of said algorithm is reduced after said
training sequence has been used once.

Claim 11 (Currently Amended): The [[A]] channel estimator as claimed in claim 1
wherein said training sequence determiner is configured to determine more than one training
sequence for a received data packet; and wherein said adaptive filter is configured to
determine a first estimated channel response using a first said training sequence and a second
estimated channel response using a later said training sequence.

Claim 12 (Currently Amended): The [[A]] channel estimator as claimed in claim 11
wherein said first training sequence is derived from a packet header and said later training
sequence is derived from payload data of said packet.

Claim 13 (Currently Amended): The [[A]] channel estimator as claimed in claim 12
wherein said adaptive filter is configured to determine a plurality of said later training
sequences for updating said second estimated channel response.

Claim 14 (Currently Amended): The [[A]] channel estimator as claimed in claim 11,
further comprising a payload data memory to store erroneously received payload data and an
equaliser to equalise payload data in said payload data memory using said second estimated
channel response to attempt to correct said erroneous data.

Claim 15 (Currently Amended): The [[A]] channel estimator as claimed in claim 11 further comprising an initialiser to initialise said adaptive filter using said first estimated channel response for determining said second estimated channel response.

Claim 16 (Currently Amended): The [[A]] channel estimator as claimed in claim 1 further comprising a channel estimate store and an initialiser to initialise said adaptive filter with data from said channel estimate store.

Claim 17 (Currently Amended): The [[A]] channel estimator as claimed in claim 16 wherein said channel estimate store is configured to store a channel estimate for a data packet immediately preceding said data packet for which said adaptive filter is configured to determine an estimated channel response.

Claim 18 (Currently Amended): The [[A]] channel estimator as claimed in claim 16 comprising a plurality of said channel estimate stores each corresponding to a data link, to store a plurality of channel estimates and a plurality of associated link identifiers, and wherein said filter initialiser is configured to initialise said adaptive filter with a channel estimate associated with a data link over which said symbols are received.

Claim 19 (Currently Amended): The [[A]] channel estimator as claimed in claim 1 further comprising a power controller responsive to a power control signal to control said determination of said estimated channel response.

Claim 20 (Currently Amended): A Bluetooth data receiver including a channel estimator for a packet data communications receiver, the channel estimator comprising:

- an input to receive data for symbols of a data packet transmitted over a channel to said receiver;
- a memory to store said received symbol data;
- a training sequence determiner to determine a training sequence using one or more variable data portions or fields of said data packet; and
- an adaptive filter coupled to said memory and to said training sequence determiner and configured to use said received symbol data and said training sequence to determine an estimate of a response of said channel.

Claims 21-22 (Canceled).

Claim 23 (Currently Amended): A method of determining an estimated response of a channel of a packet data communications system, the packet data having fixed portions or fields and one or more variable portions or fields, the method comprising:

- receiving data for symbols of a data packet transmitted over the channel;
- determining a training sequence using one or more variable data portions or fields of said data packet; and
- training an adaptive filter using said training sequence and said received symbols to determine said estimated channel response.

Claim 24 (Currently Amended): The [[A]] method as claimed in claim 23 wherein said determining comprises determining one or more substantially constant elements of said one or more variable data portions or fields of said data packet.

Claim 25 (Currently Amended): The [[A]] method as claimed in claim 23 decoding data for at least a portion of a header of a said packet determining probabilities for values of bits or symbols of said one or more variable data portions or fields of said data packet.

Claim 26 (Currently Amended): The [[A]] method as claimed in claim 25 wherein said determining further comprises determining random values for said bits or symbols weighted by said probabilities.

Claim 27 (Currently Amended): The [[A]] method as claimed in claim 25 wherein said determining further comprises selecting values for said bits or symbols dependent upon the probabilities of the selected values in comparison to a threshold.

Claim 28 (Currently Amended): The [[A]] method as claimed in claim 23 wherein said determining comprises decoding data for at least a portion of a header of a said packet.

Claim 29 (Currently Amended): The [[A]] method as claimed in claim 23 wherein said determining comprises decoding data for at least a portion of a user data payload of a said packet.

Claim 30 (Currently Amended): The [[A]] method as claimed in claim 28 wherein said determining further comprises checking said decoded data for errors, and wherein said training is conditional upon said checking finding no errors.

Claim 31 (Currently Amended): The [[A]] method as claimed in claim 23 further comprising repeating said training using said training sequence.

Claim 32 (Currently Amended): The [[A]] method as claimed in claim 31 wherein said adaptive filter is configured to employ an algorithm having a stepwise convergence to a solution, the method further comprising reducing a step size of said algorithm when repeating said training.

Claim 33 (Currently Amended): The [[A]] method as claimed in claim 23 wherein said determining comprises determining a plurality of said training sequences for said data packet, said training determining a first estimated channel response using a first said training sequence and a second estimated channel response using a later said training sequence.

Claim 34 (Currently Amended): The [[A]] method as claimed in claim 33 wherein said first training sequence is derived from a packet header and said later training sequence is derived from payload data of said packet.

Claim 35 (Currently Amended): The [[A]] method as claimed in claim 34 wherein said determining further comprises determining a plurality of said later training sequences for updating said second estimated channel response.

Claim 36 (Currently Amended): The [[A]] method as claimed in claim 33 wherein said determining of said second estimated channel response uses said first estimated channel response for initialising said training.

Claim 37 (Currently Amended): The [[A]] method as claimed in claim 33 further comprising storing erroneous payload data and processing said erroneous data using said second estimated channel response to attempt to correct said erroneous data.

Claim 38 (Currently Amended): The [[A]] method as claimed in claim 23 further comprising initialising said adaptive filter using previously stored estimated channel response data.

Claim 39 (Currently Amended): The [[A]] method as claimed in claim 38 wherein said previously stored estimated channel response data comprises estimate data derived from a data packet immediately preceding said data packet.

Claim 40 (Currently Amended): The [[A]] method as claimed in claim 38 further comprising storing estimate data for a plurality of channels; determining a current channel; and initialising said adaptive filter with estimate data for said current channel.

Claim 41 (Currently Amended): The [[A]] method as claimed in claim 23 further comprising adjusting said training responsive to a desired power consumption signal.

Claim 42 (Currently Amended): The [[A]] method as claimed in claim 23 wherein said packet data communications system is a High Rate Bluetooth data communications system.

Claim 43 (Canceled).

Claim 44 (Currently Amended): A method of determining or providing a training sequence comprising determining an estimated response of a channel of a packet data communications system, the packet data having fixed portions or fields and one or more variable portions or fields, the method comprising:

receiving data for symbols of a data packet transmitted over the channel;

determining a training sequence using one or more variable data portions or fields of said data packet; and

training an adaptive filter using said training sequence and said received symbols to determine said estimated channel response.

Claims 45-66 (Canceled).